AMENDMENTS TO THE CLAIMS

Please cancel Claims 1-87.

1. - 87. (Canceled)

Please add the following new claims:

88. (New) A device configured for joining a prosthetic appendage to a prosthetic limb, comprising:

rotatable bearing means having a proximal portion and a distal portion, said proximal portion being configured to be affixed to an end of a prosthetic limb, and said distal portion being configured to be affixed to said appendage, the proximal and distal portions being limited to rotational motion with respect to one another about an axis of rotation;

a generally cylindrical sleeve of resilient material having a top portion, a bottom portion, a central portion, an inside surface, and an outside surface, said sleeve oriented so as to surround the bearing means with a long axis colinear to the axis of rotation of the bearing means, the inside surface of the top portion of the sleeve being affixed to the proximal portion of the rotatable bearing means, the inside surface of the bottom portion of the sleeve being affixed to the distal portion of the rotatable bearing means, such that when the proximal and distal portions of the bearing means are rotated relative to each other, such rotation is resiliently resisted by torsional flexure of the central portion of the sleeve; and

a bulge, formed around the circumference of the sleeve and directed away from the rotatable bearing means, to provide additional unfixed sleeve material to reduce the magnitude of torsional resistance provided by the central portion of the sleeve.

89. (New) The apparatus as described in claim 88 further comprising stress relief means formed in the central portion of the sleeve, said stress relief means extending at least partially between the outside surface and the inside surface of the sleeve, and configured to reduce the resistance of the sleeve to torsional flexure.

90. (New) The apparatus as described in claim 89 wherein the stress relief means is selected from the group comprising a plurality of slots and a plurality of slits formed in the sleeve.

91. (New) The apparatus as described in claim 90 wherein the stress relief means are oriented parallel to the central axis of the cylindrical sleeve.

92. (New) The apparatus as described in claim 90 wherein the stress relief means extends from the outside surface to the inside surface of the sleeve.

93. (New) The apparatus as described in claim 88 wherein the cylindrical sleeve is formed of materials selected from the group consisting of polyethylene, polypropylene, polyurethane, polyvinyl, urethane, rubber, and fiber reinforced composites of the foregoing polymers.

94. (New) The apparatus as described in claim 93 wherein the material is in the range of 1/16 in. to 1/4 in. thick.

95. (New) The apparatus as described in claim 93 wherein the ratio of the length of the sleeve measured along its central axis to the thickness of the material is in the range of 4:1 to 16:1.

96. (New) The apparatus as described in claim 88 wherein the sleeve is affixed to the rotatable bearing means by means of an adhesive.

97. (New) The apparatus as described in claim 88 wherein the sleeve is affixed to the rotatable bearing means by mechanical connection means.

98. (New) The apparatus as described in claim 97 wherein the mechanical connection means is selectively releasable by a user of the apparatus such that a user may remove and replace sleeves at will, so as to allow selective installation of sleeves of varying resistance.

99. (New) The device as described in claim 88, wherein the bearing means includes a plurality of rotating bearings.

100. (New) The device as described in claim 88, wherein the sleeve and bearing means are configured to retain the bulge formed in the sleeve while the appendage is in a natural, undeflected configuration.

101. (New) A device configured for joining a prosthetic appendage to a prosthetic limb, comprising:

a cylindrical proximal connector means having a top, a bottom, and an outside surface, the top of said connector means being configured to be affixed to said limb;

a cylindrical distal connector means having a top, a bottom, and an outside surface, the bottom of said connector means being configured to be affixed to said prosthetic appendage;

rotatable bearing means disposed between and rotatably joining the bottom of said proximal connector means to the top of said distal connector means configured to allow rotation of the proximal and distal connector means relative to each other about an axis of rotation substantially parallel to a long axis of said limb;

a generally cylindrical sleeve of resilient material having a top portion, a bottom portion, a central portion, an inside surface, and an outside surface, said sleeve oriented so as to surround the proximal connector means, the bearing means, and the distal connector means, with a long axis of said sleeve colinear with said axis of rotation, the inside surface of the top portion of the sleeve being affixed to the outside surface of the proximal connector means, the inside surface of the bottom portion of the sleeve being affixed to the outside surface of the distal connector means, and the central portion of said sleeve further comprising a bulge around the circumference thereof, said bulge directed away from the axis of the rotatable bearing means, such that when the proximal and distal connector means are rotated relative to each other, such rotation is resiliently resisted by torsional flexure of the bulged central portion of the sleeve.

102. (New) The invention as described in claim 101 further comprising stress relief means formed in the central portion of the sleeve, said stress relief means extending at least partially between the outside surface and the inside surface of the sleeve, and configured to reduce the resistance of the sleeve to torsional flexure.

103. (New) The apparatus as described in claim 102 wherein the stress relief means is selected from the group comprising a plurality of slots and a plurality of slits formed in the sleeve.

104. (New) The apparatus as described in claim 103 wherein the stress relief means are oriented parallel to the central axis of the cylindrical sleeve.

105. (New) The apparatus as described in claim 103 wherein the stress relief means extends from the outside surface to the inside surface of the sleeve.

106. (New) The invention as described in claim 101 wherein the cylindrical sleeve is formed of materials selected from the group consisting of polyethylene, polypropylene,

polyurethane, polyvinyl, urethane, rubber, and fiber reinforced composites of the foregoing polymers.

107. (New) The invention as described in claim 106 wherein the material is in the range of 1/16 in. to 1/4 in. thick, and has a durometer hardness of 45 to 90 shore A.

108. (New) The invention as described in claim 106 wherein the ratio of the length of the sleeve measured along its central axis to the thickness of the material is in the range of 4:1 to 16:1.

109. (New) The invention as described in claim 101, wherein the sleeve is affixed to the proximal connector means and the distal connector means by means of an adhesive.

110. (New) The invention as described in claim 101 wherein the sleeve is affixed to the rotatable bearing means by mechanical connection means which are selectively releasable by a user of the apparatus such that a user may remove and replace sleeves at will, so as to allow selective installation of sleeves of varying resistance.

111. (New) The device as described in claim 101, wherein the bearing means includes a plurality of rotating bearings.

112. (New) The device as described in claim 101, wherein the sleeve and bearing means are configured to retain the bulge formed in the sleeve while the appendage is in a natural, undeflected configuration.

113. (New) The device as described in claim 101, wherein the sleeve and bearing means are constrained to pivotal motion about the axis of rotation.

114. (New) A device configured for joining a prosthetic appendage to a prosthetic limb, comprising:

rotatable bearing means having a proximal portion, a distal portion, and an axis of rotation, the proximal portion being configured to be affixed to an end of a prosthetic limb, and the distal portion being configured to be affixed to the appendage;

a generally cylindrical sleeve of resilient material having a top portion, a bottom portion, a central portion, an inside surface, an outside surface, and a long axis, the sleeve being oriented to surround the bearing means with the long axis co-linear to the axis of rotation of the bearing means, the inside surface of the top portion of the sleeve being affixed to the proximal portion of the rotatable bearing means, the inside surface of the bottom portion of the sleeve being affixed to the distal portion of the rotatable bearing

means, such that when the proximal and distal portions of the bearing means are rotated relative to each other, such rotation is resiliently resisted by torsional flexure of the central portion of the sleeve;

a bulge, formed around the circumference in the central portion of the sleeve and directed away from the rotatable bearing means, such that the magnitude of torsional resistance provided by the central portion of the sleeve is modified;

stress relief means, formed in the central portion of the sleeve, the stress relief means extending at least partially between the outside surface and the inside surface of the sleeve, and configured to reduce the resistance of the sleeve to torsional flexure;

wherein the stress relief means includes a plurality of slits, formed in the sleeve, and oriented parallel to the long axis of the cylindrical sleeve.

115. (New) A device configured for joining a prosthetic appendage to a prosthetic limb, comprising:

rotatable bearing means having a proximal portion, a distal portion, and an axis of rotation, the proximal portion being configured to be affixed to an end of a prosthetic limb, and the distal portion being configured to be affixed to the appendage;

a generally cylindrical sleeve of resilient material having a top portion, a bottom portion, a central portion, an inside surface, an outside surface, and a long axis, the sleeve being oriented to surround the bearing means with the long axis co-linear to the axis of rotation of the bearing means, the inside surface of the top portion of the sleeve being affixed to the proximal portion of the rotatable bearing means, the inside surface of the bottom portion of the sleeve being affixed to the distal portion of the rotatable bearing means, such that when the proximal and distal portions of the bearing means are rotated relative to each other, such rotation is resiliently resisted by torsional flexure of the central portion of the sleeve;

a bulge, formed around the circumference in the central portion of the sleeve and directed away from the rotatable bearing means, such that the magnitude of torsional resistance provided by the central portion of the sleeve is modified;

stress relief means, formed in the central portion of the sleeve, the stress relief means extending at least partially between the outside surface and the inside surface of the sleeve, and configured to reduce the resistance of the sleeve to torsional flexure;

wherein the stress relief means includes a plurality of slits, formed in the sleeve, and extending from the outside surface to the inside surface of the sleeve.

116. (New) A device configured for joining a prosthetic appendage to a prosthetic limb, comprising:

a proximal connector having a top configured to be affixed to the limb, and a bottom;

a distal connector having a top generally opposing the bottom of the proximal connector, and a bottom configured to be affixed to the appendage;

rotatable bearing means, disposed between the bottom of the proximal connector and the top of the distal connector, for rotatably connecting the proximal and distal connectors relative to each other about an axis of rotation configured to be substantially parallel to a long axis of the limb;

a generally cylindrical sleeve of resilient material, surrounding the bearing means, having a top portion affixed to the proximal connector, and a bottom portion affixed to the distal connector to resiliently resist rotation between the proximal and distal connectors by torsional flexure of the sleeve;

a bulge, formed around a circumference of the sleeve and directed away from the axis of rotation, to provide additional unfixed sleeve material to reduce the magnitude of torsional resistance provided by the sleeve.

117. (New) The device as described in claim 116, wherein the bearing means is constrained to pivotal motion about the axis of rotation.

118. (New) The device as described in claim 116, wherein the bearing means includes a plurality of rotating bearings.

119. (New) The device as described in claim 116, wherein the sleeve and bearing means are configured to retain the bulge formed in the sleeve while the appendage is in a natural, undeflected configuration.